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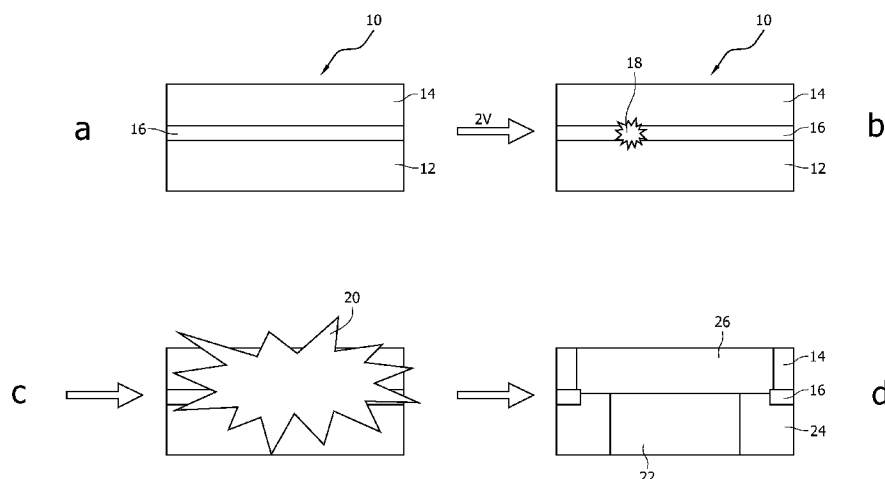
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(54) Title: ANTI-FUSE MEMORY DEVICE



(57) Abstract: A One Time Programmable (OTP) memory cell (10) comprising a first, metallic layer (12) coated with a second, conductive stable transition compound (14) with an insulating layer (16) there-between. The first and second layers (12, 14) are selected according to the difference in Gibbs Free Energy between them, which dictates the chemical energy that will be generated as a result of an exothermic chemical reaction between the two materials. The materials of the first and second layers (12, 14) are highly thermally stable in themselves but, when a voltage is applied to the cell (10), a localized breakdown of the insulative layer (16) results which creates a hotspot (18) that sets off an exothermic chemical reaction between the first and second layers (12, 14). The exothermic reaction generates sufficient heat (20) to create a short circuit across the cell and therefore reduce the resistance thereof.